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MAIN ENTRANCE, TECHNICAL HIGH SCHOOL, OAKLAND, CAL.
JOHN J. DONOVAN, Architect.

Remarks About California School Architecture

By JOHN J. DONOVAN, Architect, A. I. A.

IT WOULD require a volume of no mean size to chronicle the contributions of California to Education and to School Architecture, first as a State or a section of our country and secondly, by its people. Consequently, a paper of this length can touch only upon the higher and more prominent spots and leave the lure of pleasant discoveries to your wanderings and journeys through the State, which most

*—Paper delivered at N. E. A. Convention, 1923.

cordially welcomes and invites you to partake of its hospitality, for its

> "Come in the evening or come in the morning,
> Come when looked for or come without warning
> Kisses and welcome await here before you, and
> The oftener you come the more we'll adore you."

An eminent divine of San Francisco on several occasions has stated that California is monumental in its resources, its trees, its mountains, its minerals, the productivity of its soil and, according to our far away friends and relatives, in its liars. So, if at times I should appear to be stretching the truth, kindly remember that I am only an adopted son and at one time I too was one of those far away relatives, and furthermore, a matter which may seem exceptional before you leave the Coast, I have no real estate for sale.

To me, some of California's most favorable contributions to school architecture reflect its climate, historical traditions and the occasional practical application of a clear understanding of the requisites of child welfare in acquiring sufficient land for school buildings and playgrounds. It is not so many years ago, and in spots prevalent today, that the architect and the school man were thinking, planning and building precisely as one might expect in a densely populated city section of states like Massachusetts, Pennsylvania or New York where the restricted yard, the roof and the basement are the only available play spaces and where the rigors of winter weather are determining influences toward compact types of school building plans.

Awakened vision, animated with conscious responsibility for the health and happiness of the child, visualized Arcadias as centers for practical education. Consequently, the boundaries of the school grounds expanded until the possibilities in the development of the school plant have become almost unlimited.

Naturally the architect, finding more land upon which to place his building, like a practical, sensible human, proceeded to take advantage of the opportunity. Hence the open type of plan, and from this the more healthful, useful, pleasing and attractive building.

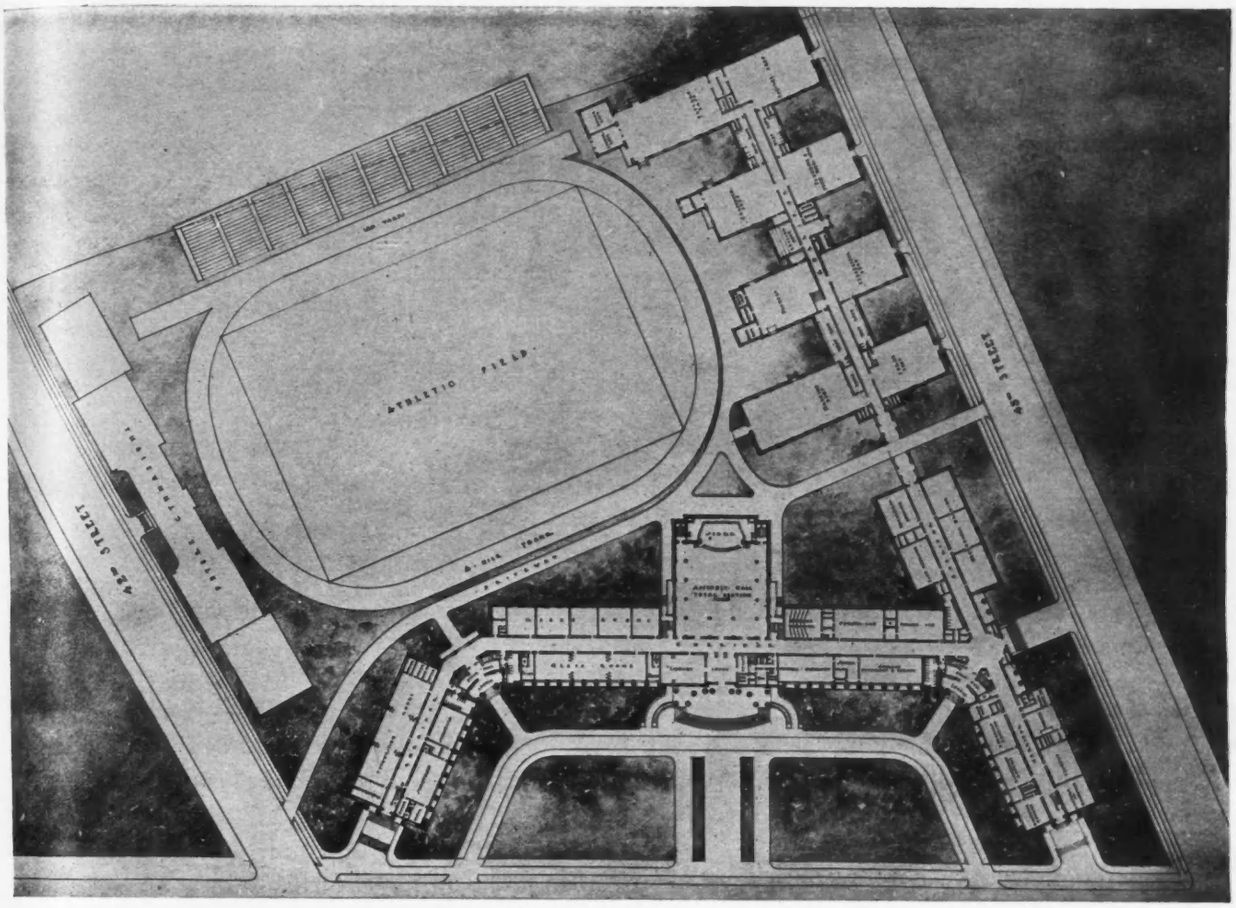
Let us stop for a moment and analyze what this has meant to school architecture. In former days with the compact arrangement it was quite customary to plan for basement rooms. That is, about one-third of the first story was placed below grade. Instruction rooms thus located could not by any means have adequate or proper lighting for notwithstanding the amount of glass area provided, the proximity of the windows to the ground precludes the admission of a sufficient volume of sky-blue light and, further, the relation of the pupil's eyes with the ground areas and adjacent buildings produce the maximum of injurious reflected light which enters the eyes whenever the pupil's head is in an upright position.

It is needless for me to take the time to dwell upon the many facts attendant to the unsanitariness of basement rooms for you all know it is only the rodent family that thrives under ground and in dark places. Elevating the building and spreading its area over more ground brought forth many interesting developments in plan of single units and groups of units which of course led to delightful exterior compositions of the modified Romanesque, Spanish, Italian, English and modern Renaissance. Thus it is that the school architecture of California has found a permanent spot in the sun.

The history of California is teeming with romance colored not only by the strong characters who were the actors but by Nature's own settings rich in mountain ruggedness and valley verdure. The early settlers, the founders of the Missions, the Padres with their small bands of pioneers, in planning and building their crude but well proportioned monasteries and Missions, chose desirable sites large in area and rich in colorful surroundings, and thereby were aided by Nature in the development of the landscape which naturally led to freedom in planning. Observe as you pass through the State and visit these early landmarks, the arrangement of the church, the cloisters, the patios and the gardens, and note the simplicity of treatment of detail and of the whole. Largeness in spirit and vision prevailed likewise with the ranch buildings or ranchos as they were called.

The story of Ramona, by Helen Hunt Jackson, with its beautiful rancho settings, vistas and simplicities of life is characteristic not only of one or two sections, but of all California. Is it any wonder then that as soon as the architect emerged from the ground and visualized what the Padres saw and allowed his imagniation to flow, he reproduced only in greater splendor the "partes" of the early Missions in our later school work.

The magnificent and wonderful ecclesiastical edifices of Europe are unquestionably an expression of profound religious worship



FIRST FLOOR PLAN, TECHNICAL HIGH SCHOOL, OAKLAND, CAL.
JOHN J. DONOVAN, Architect.

and devotion of the people; and as you pass through California you can not fail to feel that the splendid architectural achievements in school buildings now found almost everywhere are a reflection of the people's devotion and generosity to education and to the child. Any great impulse for good prevailing with a race or nation extending over a long period of time is bound to be recorded in its architecture, music, literature and other fine arts.

When one weighs in contemplation the astonishing fact that of a population of 3,800,000 nearly one-quarter of that population or 916,000 are attending school and college in the State, when it is fully realized that the State is appropriating yearly by bond issues for just elementary and high schools close to $35,000,000.00, is it any wonder that a responsive chord would be struck by the architects to give expression to such devotion. California has contributed the experiment of the one story school and it is pretty well known now just how far such a scheme should be carried so that administration may not become unwieldy, and where the line of economy ends and extravagance begins with one story planning.

One of the greatest blessings to education and to the child has come through the awakening of appreciation in even the humblest of our citizens of the value of plenty of land for school and educational purposes. This has led to fine landscape developments of school grounds. No longer is the iron picket fence with its pad-locked gate and foreboding implication "keep off" to be found, except in some of the older structures soon to be abandoned. Instead we find the building set well back from the street and side boundaries, and delightful forms created by shrub-planted spots, lawns, walks and drives which, by their exuberance and color, invite us and make us feel the charm of welcome and sincere friendliness. Then we find that areas for play have not been forgotten nor have areas for floral cultivation and nature study been overlooked. It is so accepted that the layman and lay woman now insist that these must be a part of the building program.

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MR. LEMOS' HOUSE BEFORE ALTERATION.

ART IN THE SMALL SHOP

By CLARA FASSETT

COMMERCE and Art have the name of being on very poor terms with each other. "Trade," "commerce," the "commercial spirit" is supposed to be quite indifferent to its surroundings.

Between the residence sections and show places of a city and the shopping district there is usually a distinct line drawn. Exceptions, of course, exist, as we wrote in our copybooks, "to prove the rule."

The feminine element entering trade is largely responsible for exceptions to the above rule. What of beauty in architecture and decorations we see in shops and stores is in tea-rooms and beauty parlors "salons de robes" and decorating studios, places catering to women.

The small shop of Fifth Avenue, of beautiful window effects, appeals first to the prospective buyer by reason of exterior charms. In a number of cities are being built rows of small shops, tiny "holes in the wall"—beautifully designed—all on the ground floor. The value of window advertising is so great to one starting in business that he is willing to pay the higher rent and save direct advertising expenses.

It is in the small town or city suburb that real architectural effects can be observed in the little shops selling commodities that require aesthetic surroundings to make the proper appeal.

The "Ramona Studios" at Palo Alto furnish an example of what may be done in the way of attractive small shop design. Between the illustrations "Before" and "After" you must imagine a number of months elapsing, and if you have ever planned a building, or if you are an architect whose designs are a bit unusual, you will have no trouble in filling in this blank space with the numerous difficulties incidental to getting carpenters and plasterers to carry out your ideas. They do so hate to do anything that is not a repetition of what they have done before.

Here the point of departure was an ugly, commonplace two-story house of wood, whose only redeeming qualities were a well-built frame, simplicity of line and solid construction. Mr. Pedro J. Lemos is responsible for the translation of this uninteresting edifice to a building of beauty, Spanish in feeling, of terra cotta tinted plaster, with tiled roof, fence and gateway, all nicely balanced parts of the scheme. Mr. Lemos, besides being an artist and craftsman, editor of a magazine and curator of Stanford Museum, has also ideas on architecture and city planning which he is carrying out in his home town, Palo Alto.

The entrance to the art shop, which occupies the whole front of the studio, is at the side. You approach through a "Mission" gateway to a small portico. The door leading to the entrance hall is in itself a

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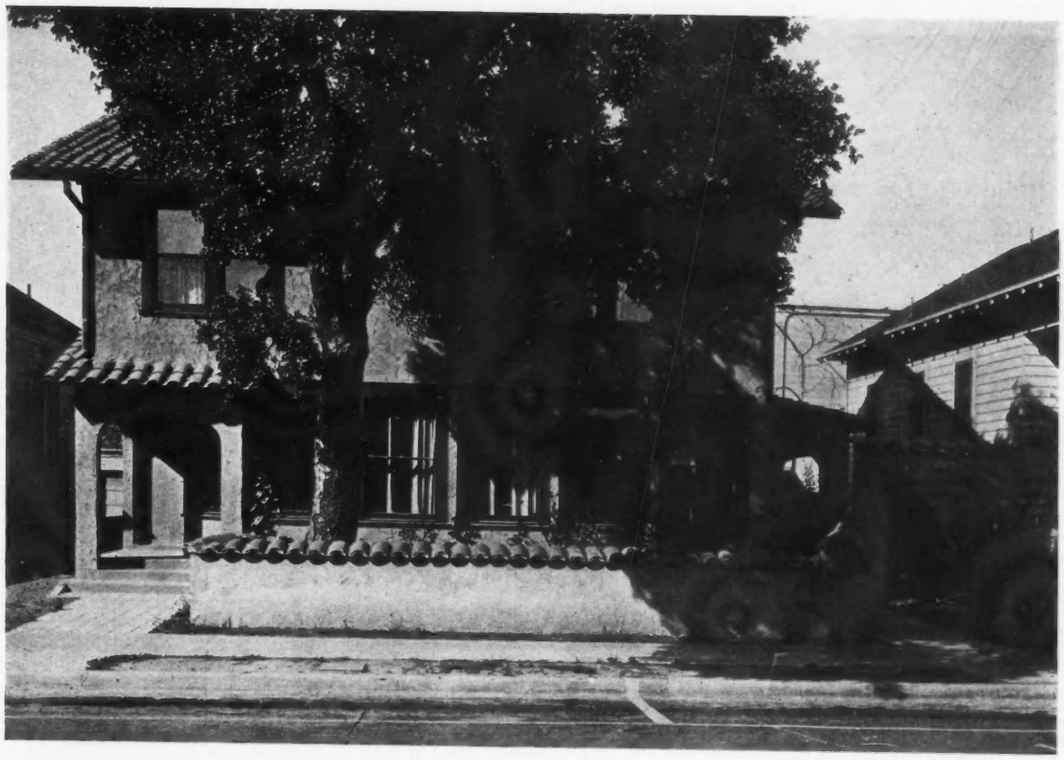
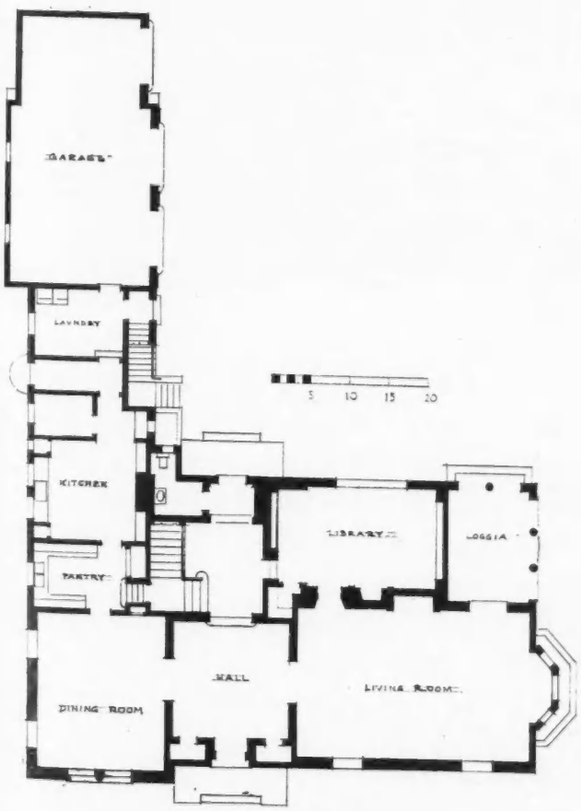
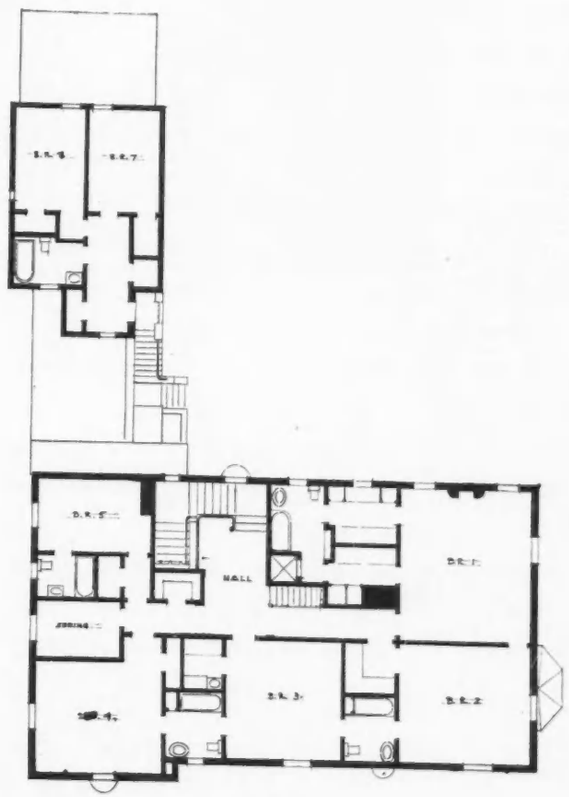


MR. LEMOS' HOUSE AFTER ALTERATION.



FIRST FLOOR PLAN.



SECOND FLOOR PLAN.

RESIDENCE OF MR. P. J. WALKER, PIEDMONT, CAL.
GEO. KELHAM, Architect.

UNIV. OF MICH.

EDITORIAL

WHEN a man decides to put up a building, for whatever purpose, of whatever type, he wishes to have it up-to-date. If it is for revenue, it must compete with others of its kind for durability, for every attraction of modern conveniences. If for his own use, his pride and his comfort demand much the same conditions.

This statement is so obvious that it is almost a platitude.

For information as to the countless details of construction and equipment which are required, the owner investigates personally some few items, consulting with his architect for confirmation of his judgment; but for the most part, he must trust this architect to protect his interests. The amount of satisfaction and profit depends upon the extent to which this is accomplished. And the measure of success reacts inevitably upon the architect and his future practice

It is clearly a vital necessity for architects to get as much as possible information about the thousands of materials, methods and devices now available, and to keep up with the constant changes and improvements.

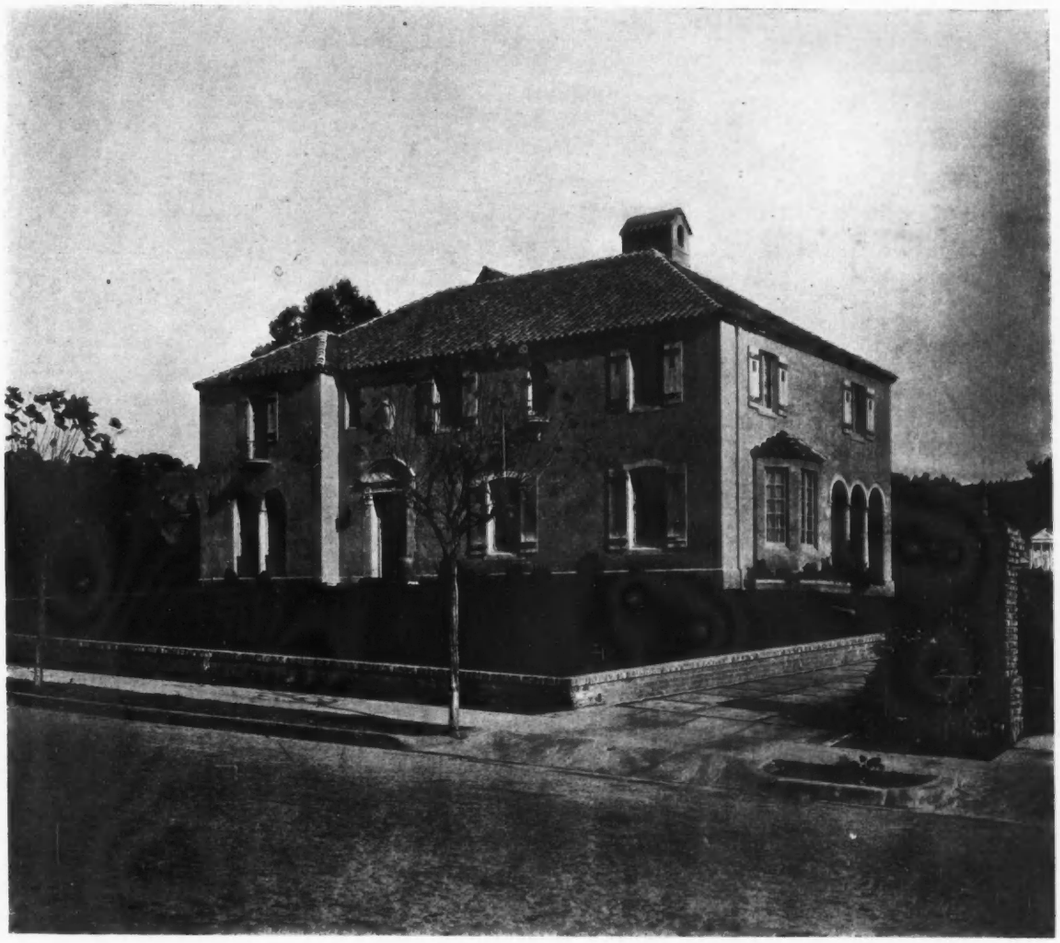
The efforts of producers to give information to users have been most unsatisfactory. The economic waste has been appalling. Enormous sums of money have been spent in advertising and in salesmen's salaries. But busy architects can not wade through masses of mail or listen to lengthy sales talks; they would have no time left for the drafting room and the regular business of their calling.

How, then, is this problem to be solved? How get information to users **when** they need it, and so **clear** and **compact** that no time is wasted?

This requires co-operation. The producer must reform his advertising methods, and the architect must reform his filing system.

It is safe to say that this reformation is under way. Following a conference about a year ago between the Structural Service Committee, A. I. A., and a number of prominent manufacturers, formed a "Producers' Section" of the A. I. A. Many subsequent conferences have resulted in definite progress; several reports have been printed and distributed to architects and producers; and a Standard Filing System has been adopted.

It remains for the spirit of co-operation to spread throughout these bodies. We may expect slow general progress for a time, but it is difficult to see how the mutual benefits can escape recognition. When an architect can keep in a compact file the addresses of manufacturers' agents for all products in which he is likely to be interested, and can send for complete data when the occasion arises, there will be saved all the vast quantity of indiscriminate mailed matter, and it will be comparatively easy to keep abreast of major improvements.



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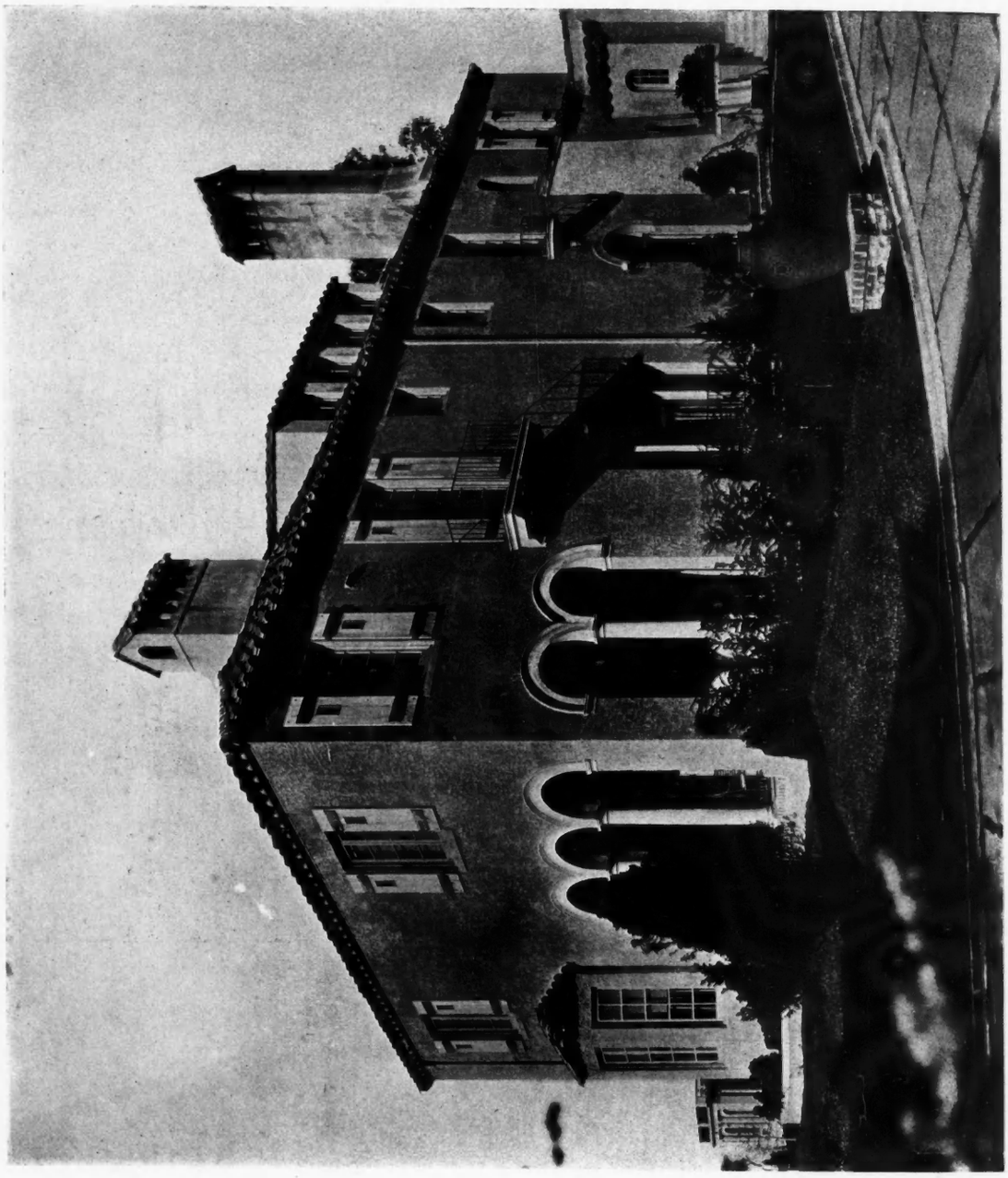
GEO. W. KELHAM, Architect.



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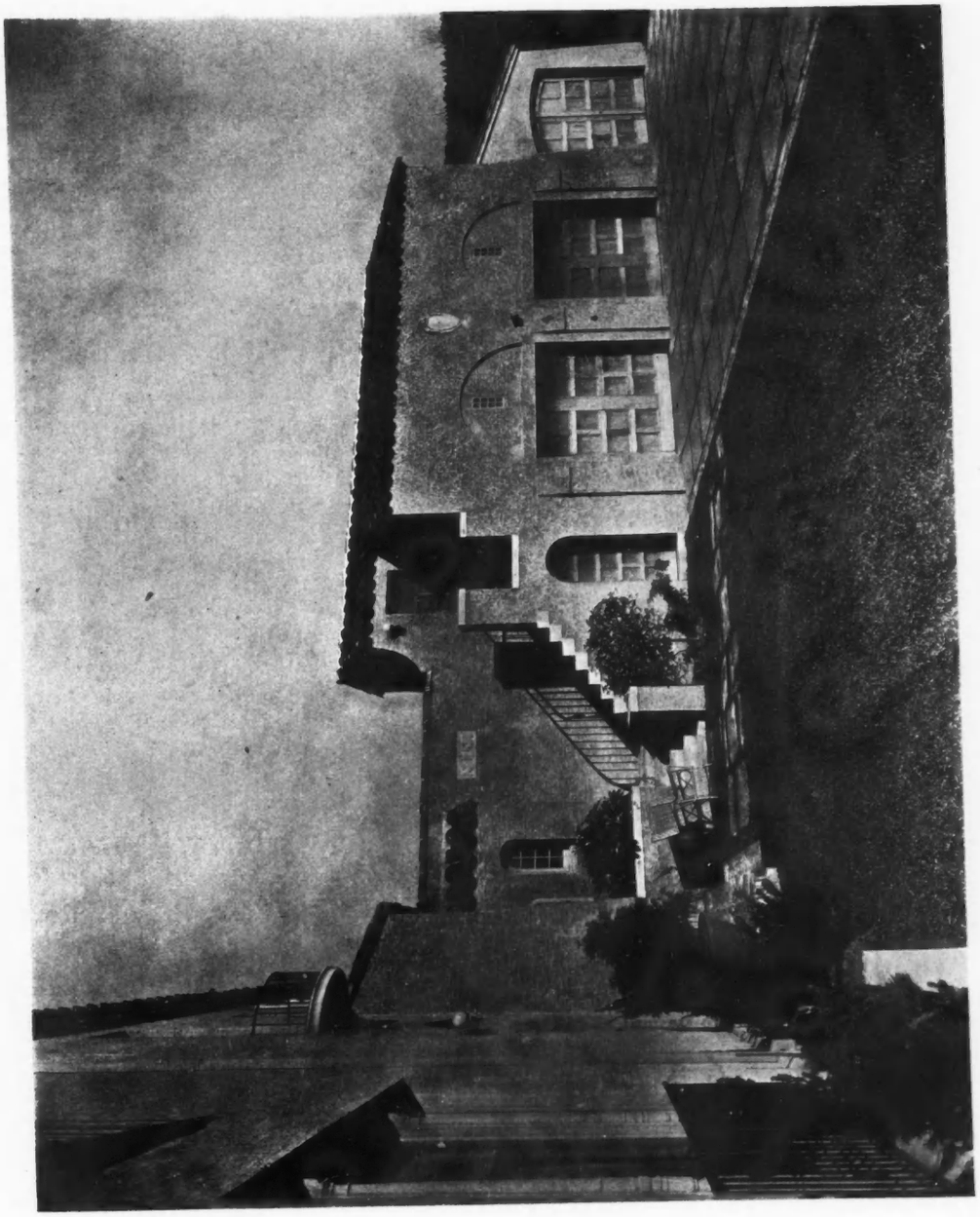

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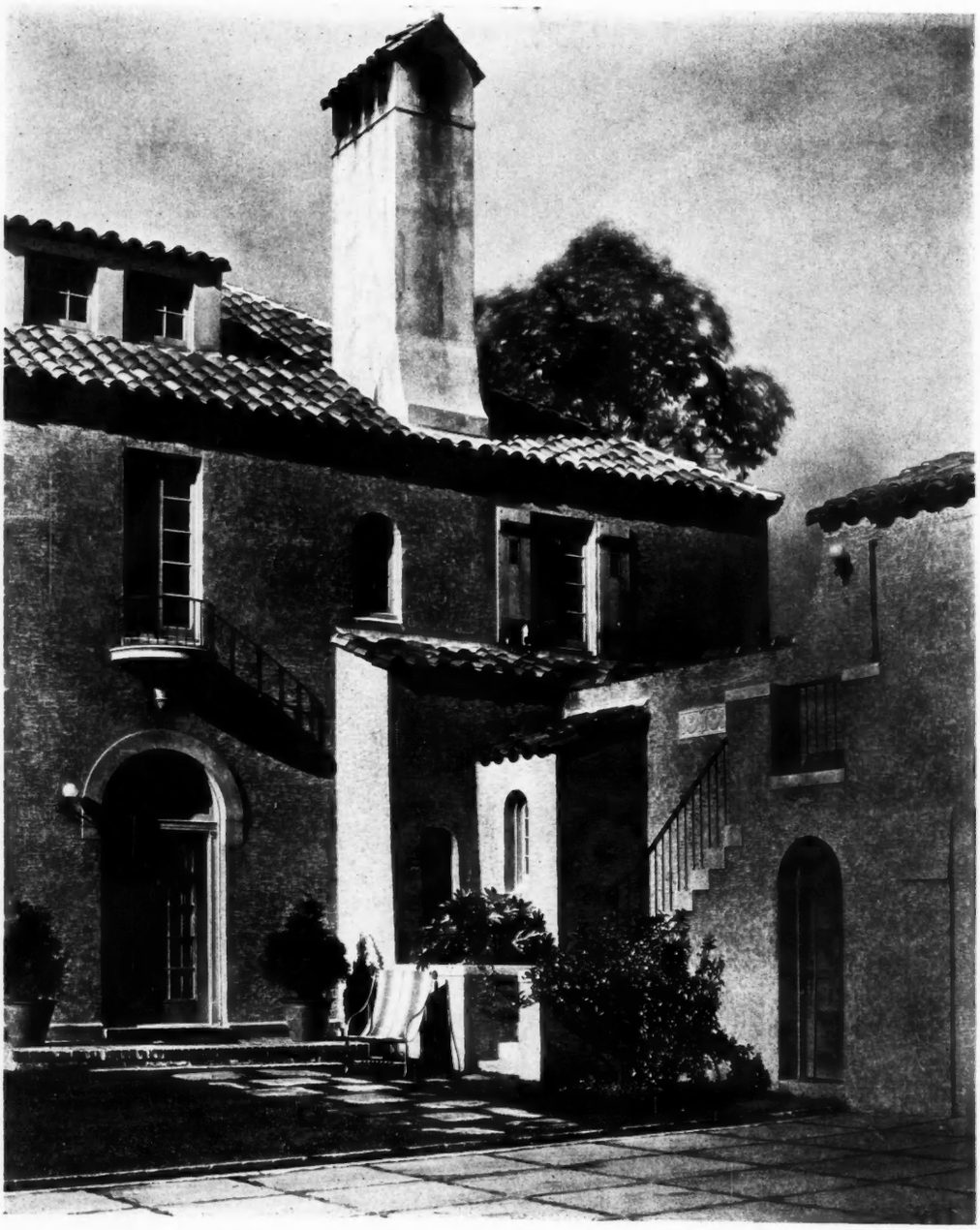

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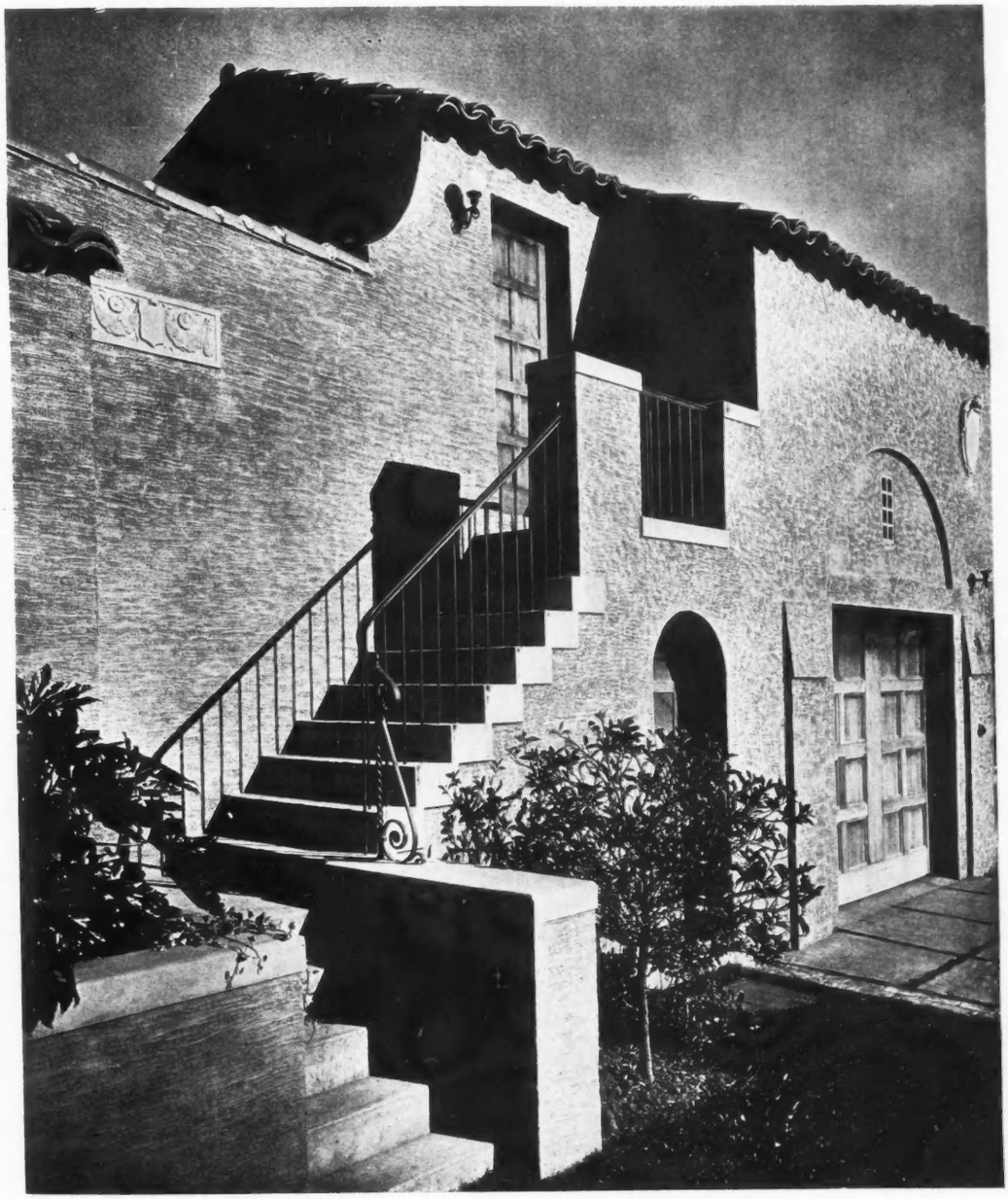


RESIDENCE OF MR. P. J. WALKER,
PIEDMONT, CALIFORNIA.
GEO. W. KELHAM, Architect.

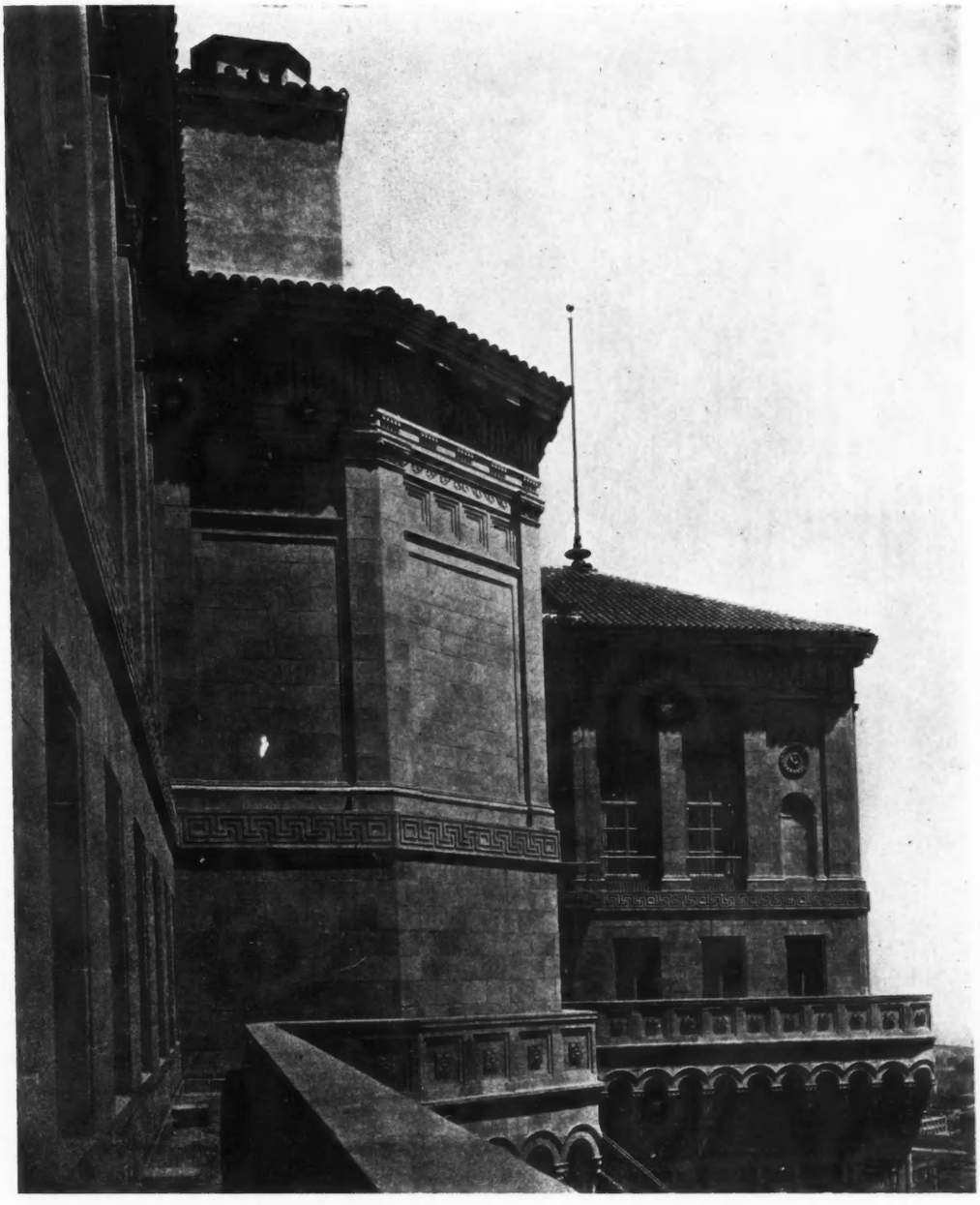
FROM TELEGRAPH HILL.

STANDARD OIL BUILDING,
SAN FRANCISCO, CALIFORNIA.
GEO. W. KELHAM, Architect.

STANDARD OIL BUILDING,
SAN FRANCISCO, CALIFORNIA.
GEO. W. KELHAM, Architect.

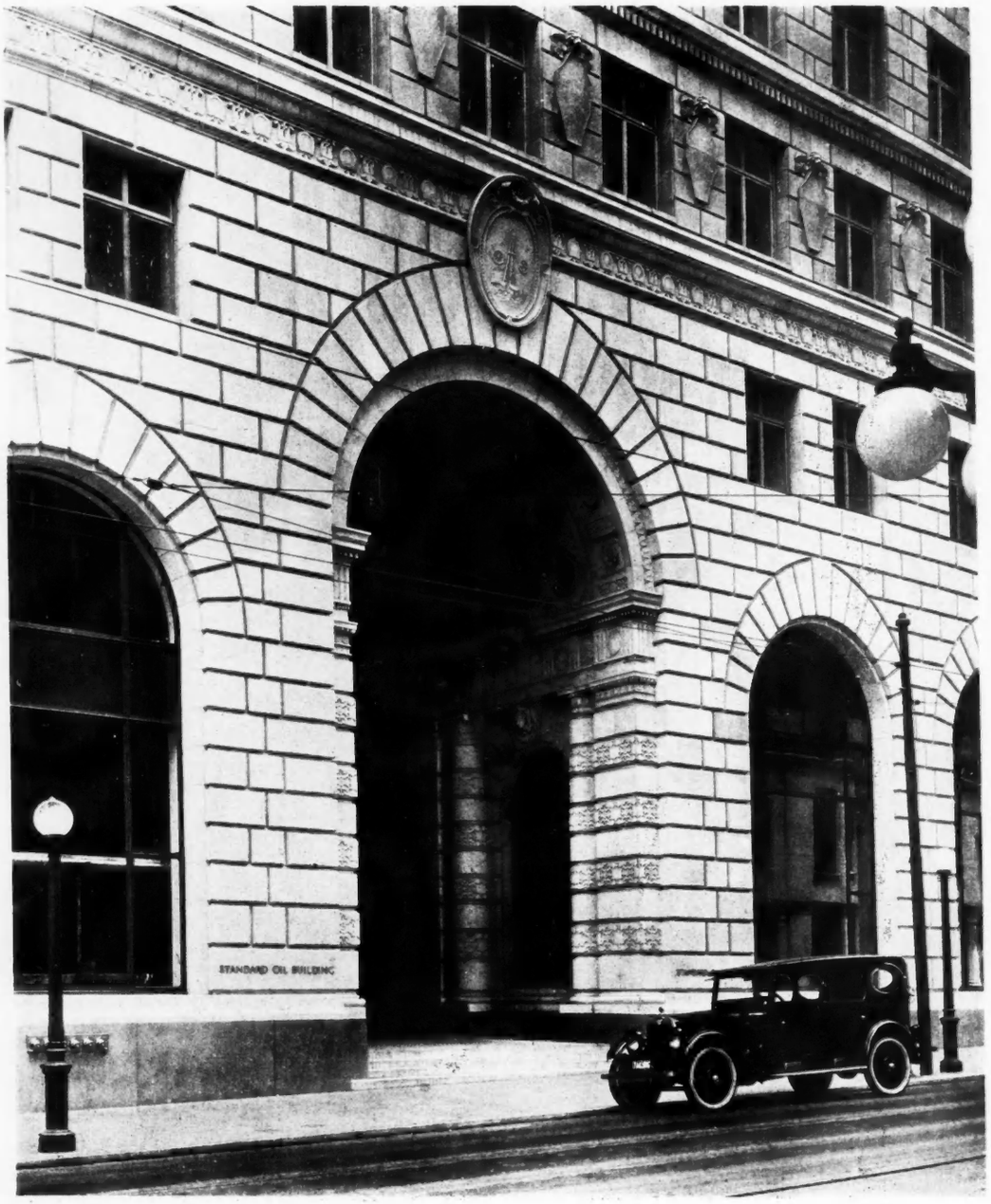
COURT FACADE.

STANDARD OIL BUILDING,
SAN FRANCISCO, CALIFORNIA.
GEO. W. KELHAM, Architect.



DETAIL OF COURT ABOVE 18TH FLOOR.

STANDARD OIL BUILDING,
SAN FRANCISCO, CALIFORNIA.
GEO. W. KELHAM, Architect.



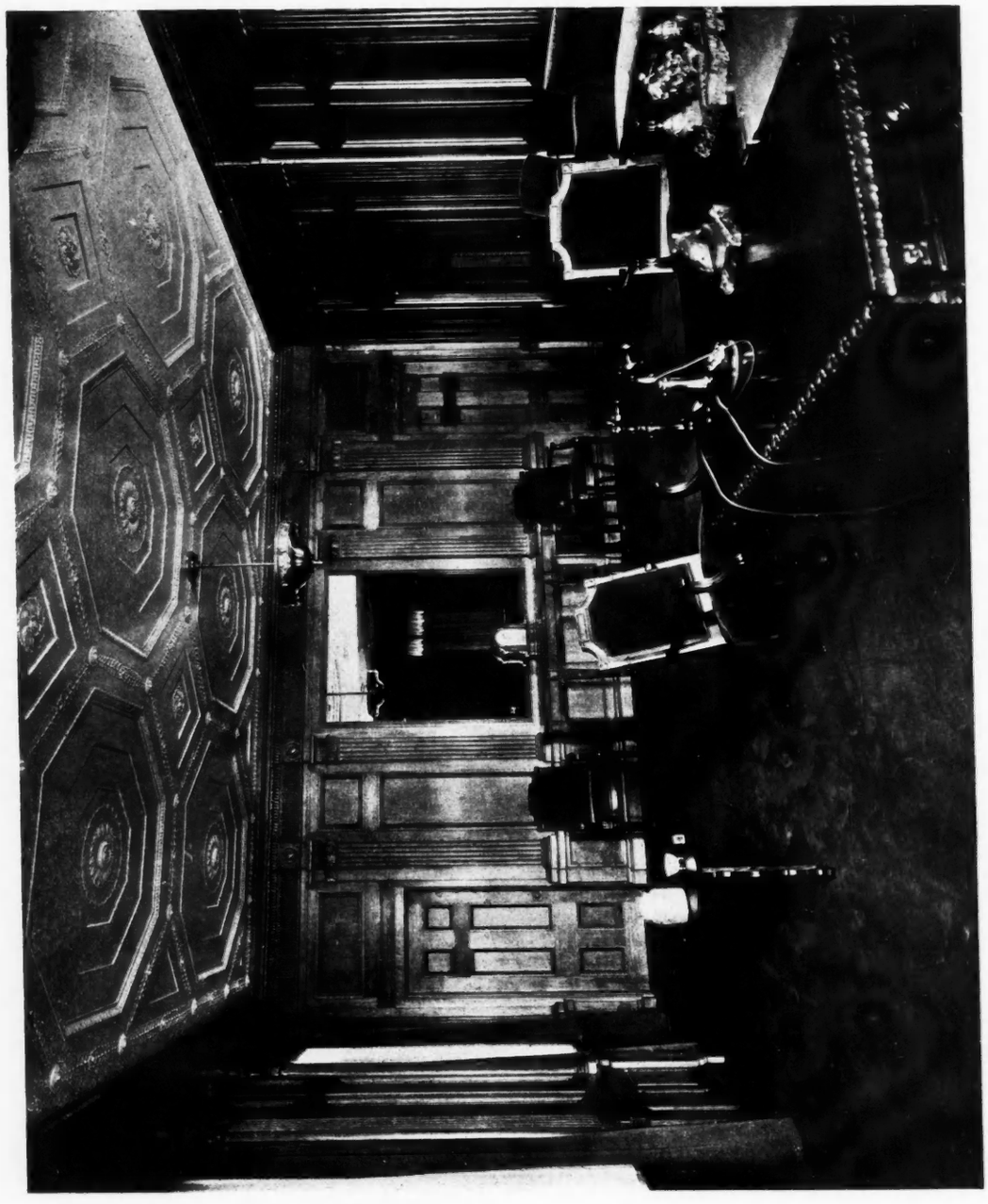
MAIN ENTRANCE.

UNIV. OF

STANDARD OIL BUILDING.
SAN FRANCISCO, CALIFORNIA.
GEO. W. KELHAM, Architect.

ROOF GARDEN, 22ND FLOOR.

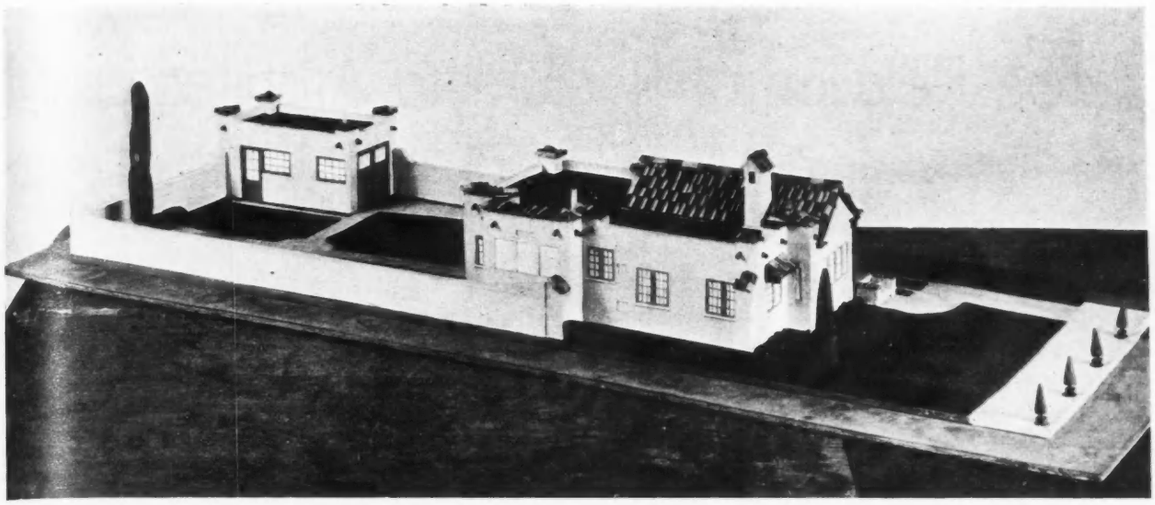
STANDARD OIL BUILDING.
SAN FRANCISCO, CALIFORNIA.
GEO. W. KELHAM, Architect.



PRESIDENT'S OFFICE, 18TH FLOOR.

MICH.

STANDARD OIL BUILDING.
SAN FRANCISCO, CALIFORNIA.
GEO. W. KELHAM, Architect.



Miniature Models of Cardboard

By JOCKEMO CASASSA,
Of the Lewis Rothé Studios,
San Francisco, Cal.

MANY people find it difficult to visualize the completed structure from blue prints of plans and elevations. Architects have found a model, presented with the plans, the best way of insuring complete satisfaction. The model is the building in miniature, correct in every detail, for it is constructed from the architect's working drawings. The entire lot and as much more of the surroundings as desired, are embodied in the model. The building is placed to the best possible advantage on the lot, and gardens and other contemplated improvements on the property are also worked out to scale. The proposed color scheme is accurately carried out, trees, flowers and shrubbery are also colored, giving the model a feeling of life. A carefully colored model is of value in obtaining painter's estimate.

A cardboard model can be made for approximately the price of a perspective drawing, which it replaces entirely. The drawing gives only an impression of the completed structure, and can give but two sides of the building. A model presents the building in any perspective or elevation. Any corrections or improvements desired can then be made in the plans before actual

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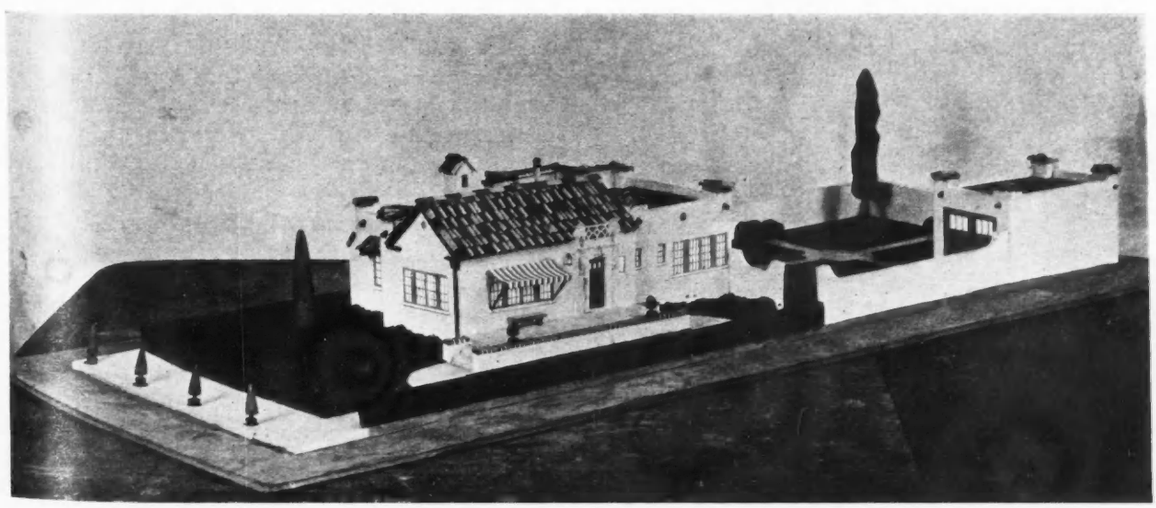

The Relation of Radium to Architecture

By WILLIAM H. DEY,
Manager, Electrical Division,
United States Radium Corporation

RADIUM may not commonly be looked upon as a building material, but nevertheless at the present time it is an important factor in architectural specifications, and it is important for the architect to be familiar, to some extent at least, with the facts concerning this unique material and the manner in which it is used.

Then tendency on the part of hospital boards to purchase radium as an essential part of their therapeutic equipment and to use it in the form of emanation, makes it necessary for the architect to be familiar with the provisions to be made to take care of the radium material and the accompanying apparatus.

A radium emanation plant must of necessity be designed by experts specilizing on this subject, in which connection it might be mentioned that Dr. William Duane, professor of Bio-Physics at Harvard, is one of the men who have been very prominent in this work and has been responsible for the design of most of the large plants.

The provisions for room in which to install the apparatus must be made by the architect. It is well in this connection to observe that at least two rooms must be provided, since the sensitive instruments for measuring the emanation tubes must be located as far as possible from the supply of radium itself.

Noteworthy examples of planning in this respect are the work of Louis Allen Abramson of New York City in designing the Beth Israel Hospital, New York, and the work of Berlin & Swern of Chicago in their designs for the $8,000,000 Herman Hospital in Houston, Texas.

In both cases lead lined rooms for the X-Ray and radium apparatus, and other special features have been provided which though expensive would cost considerably more to install if not arranged for in the original plans.

In addition to the above relation to the design of hospital and laboratory buildings, some of the indirect uses of radium are of interest to architects. Radium luminous material, and its application to commercial products, forms the basis of the greater part of this interest.

Radium luminous material is a radioactive self luminous material and does not require connection with any outside source of energy or exposure to any source of light. The definition of a radioactive self luminous material as given by Dr. N. E. Dorsey, at that time in charge of the radium division of the U. S. Bureau of Standards, in a special report prepared for the National Advisory Committee for Aeronautics, is as follows:

"Self-luminous radioactive materials consist of mixtures of a responsive base, usually zinc sulphide, with small amounts of radioactive substances. Luminescence is caused and maintained by the bombardment of the responsive base by the alpha radiations accompanying the disintegration of the radioactive constituents of the material."

The question of length of useful life of this material is one of the questions most frequently asked the writer when discussing this subject with architects.

There are different combinations of radioactive materials and differences in the qualties of zinc sulphide used by the several manufacturers, but the standard luminous materials as made in this country all have a life estimated at from one to fifteen years. Foreign made materials are for the most part much shorter lived.

Radium luminous material has been manufactured in this country for about eight years, but the deterioration shown during this period has been in keeping with the life charts on which the above estimate was made and it is entirely probable that the estimate will be shown to be, if anything, conservative.

The problem of selecting a proper luminous material is one which the manufacturer using same is quite competent to solve, so that the architect can rely on the responsibility of the manufacturer in so far as this feature is concerned, the same as he does as

(Continued on Page xiv)

Responsibilities of the Architect and the Engineer in Timber Conservation

LUMBER was used long before iron and steel and yet the general public, the architect and the engineer are more familiar with the mechanical properties of the metals than they are with those of the different species of wood. There is a reason for this condition. Engineers and architects have not studied the mechanical properties of woods as they have of the metals. Even lumbermen themselves have not studied the mechanical properties of the species of lumber they are manufacturing. As a matter of fact this information has largely not been available. Lumber has been merely lumber to most people and they have used it because it always has been used. Yet to use lumber intelligently one must consider the mechanical properties of each species, just as he considers the mechanical properties of the metals.

When the metal man came along and offered a substitute for wood he told the architect and engineer what the mechanical properties of his metal were, and we cannot blame the architect and the engineer for accepting the substitute, especially when they had no data on the properties of wood. Some of these substitutions have been advantageous and others have not.

The United States Forest Products Laboratory at Madison, Wisconsin, has been studying woods for many years. The war intensified these studies somewhat, but the Laboratory has been handicapped by insufficient appropriations and has not been able to do all it would like to do. However, the work that has been done has been highly satisfactory and very valuable to the lumber industry, and the Laboratory is endeavoring to disseminate the facts about wood to everyone interested.

Only a small percentage of architects and engineers are taking advantage of this information. A part of this lack of interest can be attributed to indifference, but most of it comes from their not knowing where to get the right kind of information on the different species of lumber.

This also accounts for the large variance in the specifications drawn up by architects in different states and localities. Architects in one locality may be loath to consider the use of a certain species of wood even though that species has been specified, used and found entirely satisfactory for years by architects in another locality.

Why is it that the sticking on all the doors used in the state of California is always specified one of two styles, neither of which is standard with the large door manufacturer? If fir is good enough for the pulley stile of a window, why is it not used for the sills also?

The psychology of the carpenter in different localities has a great deal to do, too, with the uses of lumber. Why does he order 16 foot lumber and then cut most of it up into 8 foot lengths when he uses it? Why does he sometimes object to hanging a fir door because it cuts a little harder than white pine? Yet he uses fir for finish and cabinet work, and when he has to hang a hardwood door he accepts it and says nothing. California carpenters sometimes express themselves as not liking fir sash, yet they use fir in almost every other place in an house. Carpenters in Oregon, Washington, Louisiana, Tennessee, New York and Connecticut are using fir sash. Why not in California?

Lumber users do not seem to realize that, as the production of any species reaches its peak and begins to decline, it means smaller and smaller trees are being cut. The smaller the tree the greater the percentage of sap wood, and this is a great deal less durable for outside or exposed work, even though painted, than the heart wood. Some species of wood, too, run heavier to sap wood than others.

The millwork men in California have to pay the highest price for the fir lumber they use in order to get the long cuttings required for the stiles of the one panel doors which are popular there, and this price is reflected back to the builder, whereas if California were using fir sash the mill men could use a percentage of material with shorter cuttings as well as reduce the percentage of waste in the lumber he is now

*—West Coast Forest Products Bureau.

buying and buy his raw material for less money.

The public looks to the architect and engineer to see that they get the best material possible at a reasonable cost in their construction work.

The architect who narrows his specification to one species of wood when other species have the same, and sometimes better, mechanical qualifications, is not only sometimes making the building cost more but is not helping to conserve timber resources.

With the necessary information put before architects and engineers, then, their recommendations can be based on the real qualifications of the woods that can best be used for any particular purpose or place.

We would then have true conservation of our natural resources.

Every lumber manufacturing district in the United States has had to go through the same experience with regard to waste in manufacturing a species of lumber. Each respective district has been nearly cut out before the waste was eliminated. In 1895 the mills in Northern Wisconsin would not saw a hemlock log, and if one slipped in by mistake and some of the lumber went out on a job, the carpenter would throw it out and would not use it. No one knew the mechanical properties of wood at that time, and prejudice on the part of the builder, the architect and the engineer was the force that threw it out. Today they are using practically none of the local woods but hemlock for building in that territory.

With the experience of earlier producing regions before it and the increasingly available knowledge of wood properties, the West Coast can practice better utilization and elimination of waste while it still has vast resources available.

The public depends on the advice of the architect and the engineer. If they know the mechanical properties of the different woods they can advise intelligently.

Mountjoy & Frewen, Architects, announce the removal of their offices on July 15, 1923, from the Chamber of Commerce Building to Suite 1000, Patterson Building, Denver, Colorado.

Remarks about California School Architecture

(Continued from Page 15)

And to what does it all contribute — just this, that the school and the grounds attract the child, and, of course, that which attracts holds the interest.

We are far from the Utopian in man's relation to man, but it is certainly clear that these contributions to the child's welfare are deep foundations to fuller and more complete citizenship. And what is good citizenship, a phrase so often hauled forth to veil vacuity of thought or rambling in reason. To me it is simply an ingrained desire on the part of any member of a community first of all to do the right thing by himself and by his neighbor and then a desire to put into effect sound principles of progress for the maintenance and advancement of human health, prosperity and happiness. The object of the school is to train the child mentally and physically along prescribed lines and then, by environment, contact and observation, to give him the power to attain these desires and to employ them most effectively for the benefit of society in general.

Then is it not the function of the architect to interpret this purpose of the State in Education and so to plan, design and compose his projects that the environments of the institution are most conducive to harmonious assimilation of the ideals of citizenship with the other important elements of education as the child moves on in age.

The end is by no means in sight, but it is evident to those who seem to see and think most clearly on this great problem of school building, that the teaching and architectural professions are communing in a common language built on intimate knowledge of cause and effect, requirement and solution, and adaptation of building to curriculum.

And from this communion of minds and purposes there has come a serious effort to create an architecture delightful as well as practical. In spots there are evidences of stiffness and clumsiness in expression, but on the whole you will find a freedom in line and form guided by a sense of restraint and respect for good taste. Fortunately, slavish adherence to any particular style or period of architecture is generally absent. It seems that the members of the profession prefer to mould the native materials simply into the forms that come to mind in the solution of their problems. Academicians

in design we have few if any, and is it not fortunate that this is so, for, like the early writers of California, the architects are receiving their creative inspirations from the people, the times, the motives of purpose and the country itself, and the architecture is merely a reflection of the spirit of all these.

Grant me your indulgence to touch on the effects of climate again. I made a recent extended visit through the East where I returned to scenes of earlier life and at a time (February and March) when a great blazing log in the fireplace brought recollections of warmer climes. Then I realized that permanency in materials is a first consideration so that the structure of a building and its component parts shall withstand the rigors of frost and weather. I found places where that fine plastic material, terra cotta, so desired by us here, is in disfavor. Just what would happen to such materials as imitation stone, which is so frequently used here, is fearful to contemplate.

Rigorous winter sections of the country are building more permanently than we are in California and it may prove wiser and more profitable ultimately; but the next few years will be productive of many charming creations in California School Architecture because of the responsiveness of the materials to the touch of the creative power of the builders. In other words, because of climatic conditions, the architect here is held in less restraint both in form of plan and in use of material, which should enable him to contribute to the problem of school architecture many interesting and valuable solutions educationally and architecturally. May I say a good word here for my fellow architects in our mutual endeavors? It is this: they are sincere in their desires and ambitions to serve to the fullest extent and to accomplish creditable examples. That is an assurance of progress in achievement, and I am very happy indeed to be counted among them and to share their interest.

This brings to mind a matter which is well worth placing before this conference for reflection, and that is the attitude of the adverse critic of the public school and its architecture. Free and constructive criticism is good for the soul, humility of mind and for progress in human development, but criticism based on personal prejudices uninvestigated hear-say information not found on fact, and simply because the tax bill hurts is not productive of anything but deplorable decadence. Just because a man once attended school or once taught in a school or is a successful respectable citizen is no proof that he is a competent authority on education or on projects requiring special and extended training in the science of planning, engineering and artistic creativeness. The day worker is exempted from this charge, for as a rule he usually accepts conditions as they prevail with very little fault finding. But I do charge men who have risen to heights in their professions or trades with unfair and unwarranted criticism of the public school by decrying as lavish a well thought out plan to cope with the school requirements of the present day; and if the material of the structure is well chosen to express an excellent design, the criticism is extended to this—although the critic in ninety-nine times out of an hundred is unfamiliar with problems of education and child hygiene, to say nothing of building, engineering or architecture, and because of his position, social, professional, business or otherwise, his words carry weight and do endless harm. The "soap box" orator is harmless to any cause regardless of his rantings; but it is the unjustified complaints on baseless surmises from the substantial citizen that will retard the development of the country's greatest industry—the training of the future citizens.

No brief is held here for the incompetent or the sluggish minded architect who simply executes an honorable commission just for the financial returns. Nor is there any desire to spare the rod of just rebuke from the mountebank who sets himself up as a Moses ready to throw new light on this problem which actually requires self-effacement and realization that time an intimate acquaintance with school work is essential to successful solutions, nor is there any brief to hold for the absence of simplicity in plan and exterior in the architectural creation. Excrescence in useless, meaningless and misapplied ornament or decoration is to be abhorred by both professional and laymen alike, and this leads me again to pay tribute to the courage and fortitude of the architect who responds to the call of his ambition to do a work worthy of his calling both in plan, elevation, and choice of materials and workmanship. It is so easy to do the commonplace thing, to copy and repeat what has been done before by himself or by others, that when we find men first evolving the plant to its greatest usefulness and then

striking out to express this in clear, precise, harmonious architectural diction, those who understand are thrilled to exultation, realizing that the greatest profession of all—edution—has received a progressive impetus.

If society has not yet learned where and how to place taxation, and evidently it has not, so that its burden is least felt by all, that is no reason why criticism should be levelled at the school and its plants, simply because it is the easiest and safest mark to hit. Has it ever occurred to you as peculiar that very little criticism has been levelled at the cost of jails, asylums and other penal and corrective institutions, compared with the criticisms aimed at the school and its operation? Do you know it cost Philadelphia about $12.90 per capita last year to educate its children and about $9.00 per capita for its corrective institutions, courts, and police department, and the ratio of the cost of education with correction in all cities and states is about this or worse? Do you ever stop to realize that more than 80% of the inmates of state penal institutions have received less than a sixth grade education? But enough of criticising the uninformed critic and his criticisms, but this is as favorable an opportunity as any to return his compliments of approbium in kind.

It takes years of association to understand the school building program for the fullest interpretation by the human mind and it takes years of intensive study, training and experience to attain proficiency in the architectural profession as it does in all professions and it is with a sense of respect for both achievements that I pay this simple tribute to my fellow architects, not only of California but throughout the United States for their efforts, skill, courage and intelligence in endeavoring to meet humanity's needs ambitiously for humanity's sake.

CEMENT MAKING FILMED

Much of the unusual equipment involved in making cement is interestingly illustrated in a two reel moving picture called "The Story of the Manufacture of Portland Cement," just released for general showing.

Starting with views of one of the large plants in which the country's cement is made, the film pictures in a non-technical way the essential steps in transforming thousands of tons of raw materials into portland cement. Scenes taken at a number of plants are included.

TESTS POINT WAY TO SAFER ELEVATORS

Seventy-five per cent of Fatal Accidents Preventable United States Bureau Finds

About three-fourths of all fatal elevator accidents are found to occur at the hoistway door, either because of the door being opened when the elevator is not there or because of the elevator starting when the door is open. These accidents can be prevented by a reliable interlock, as when such a device is used the elevator must be stopped at the floor before the door can be opened, and the door must be closed before the car can be started again.

During the past year the Bureau of Standards has been conducting tests to determine the reliability of the various types now on the market. The devices have been given endurance tests under normal conditions, they have been tested in a corrosive atmosphere, in a dust laden atmosphere, without lubrication, and under conditions of misalignment likely to occur in practice.

INDUSTRIES EXPOSITION WILL OPEN IN NOVEMBER

The California Industries Exposition dates have been set. The exposition will be held in the Civic Auditorium, occupying the entire building, including all the halls, corridors and basement, from November 17 to December 2.

Angelo J. Rossi, president, has announced that Anthony A. Tremp, exposition director, has again been selected as general manager.

Offices with Mr. Tremp in charge have been opened on the fourth floor of the Civic Auditorium, and here manufacturers can make application for exhibit space.

In the past the exposition has shown its value as a business stimulator by interesting the consumer and acquainting him with the extent and variety of the many products manufactured in Central California. The exposition is an educational market builder.

Manufacturers are asked to take advantage of the opportunity to exhibit at the exposition, which is conducted by the Central Bureau and Program Committee of the San Francisco Organizations.

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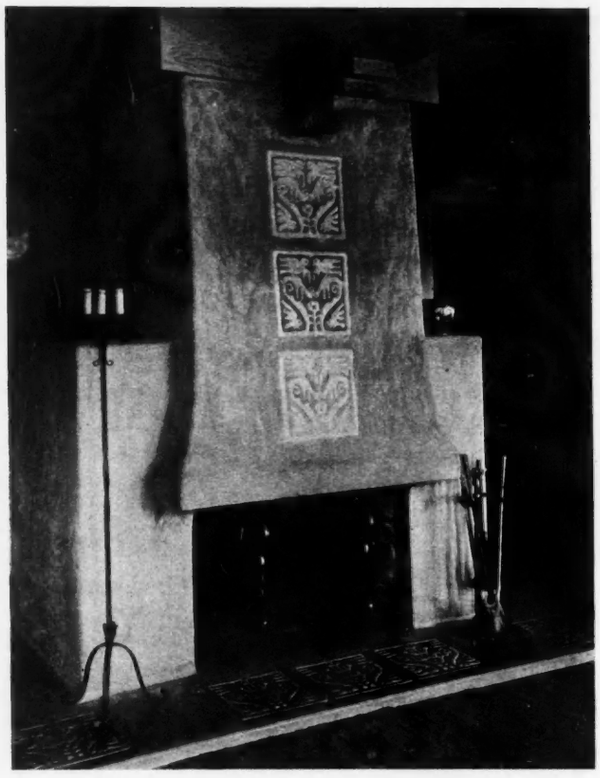
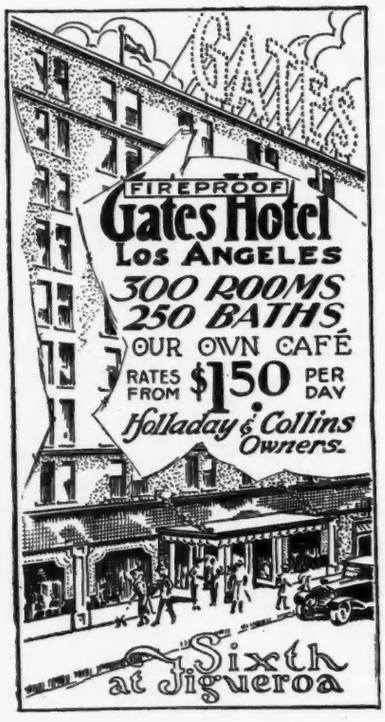


FIREPLACE IN MR. LEMOS' HOUSE.



Art in the Small Shop

(Continued from Page 16)

thing of beauty, inset with panels of polychromed wood carving, whose motifs are adapted from Alhambra tiles.

Opening from the entrance hall to the left, occupying the whole front of the building, in which are displayed objects of art and furniture, arranged as in a well furnished home. To the right, in a smaller room, is located the gift shop.

The lighting of the main room is worked out very successfully. The three windows of the original house were increased to six, making the whole front of glass. These windows are curtained in a khaki colored casement cloth, through which the sunlight streams a mellow golden glow.

Architecturally the feature of this living room shop is its fireplace of cement, built on lines of bold, almost primitive simplicity, with decorative insets of cement tiles in Aztec pattern. The tile inlay is typically Spanish, yet owing to the difficulty and expense in procuring the glazed tiles for building purposes, comparatively few builders use them. Mr. Lemos has overcome this difficulty by using cement tiles, designed to make this form of decoration popular by decreasing the expense, and at the same time meeting a demand for exterior ornament especially appropriate in this age of cement. These tiles are not glazed, but hardened in water, and have been used, both tinted and in natural color with gratifying results, as ventilators, decorative ornaments and for flooring.

Upstairs is the "Gown Shop Gay" in its painted and paneled walls, hung in orange and black, all accessories in perfect accord, just enough goods on display to whet the appetite creating an instant desire to buy clothes. Psychology is evident here. Contrary to the prevalent opinion, women who buy clothes at the most expensive stores do not like to spend hours shopping for the pleasure of the expedition. They like to make their selections at the "shop in time" where the element of personal service and painstaking interest is a special feature.

The living quarters are upstairs, reached by a separate entrance. At the back is the garage, a reformed coal shed, all dressed up in terra cotta plaster with a quaint green door and decorative panel ornamenting its front, almost too attractive for its utilitarian purpose; I do not doubt but that shortly it too will become a part of the studio.

Informative Advertising

II. To the Advertiser:

(Continued)

In Connection with the Presentation of Printed Information

(From Bulletin issued by Structural Service Committee, A. I. A.)

1. Substance of the Message

Does the document present the facts which architects are likely to demand?

Has a diagram or tabulation been omitted which would help; or has one been included which means nothing?

Is an example of the use of a material, or testimonial or report of test badly selected?

Has a vital question sure to arise in the architect's mind remained unanswered?

Has a claim been made which is likely to leave a bad impression?

Has a claim been made which is worthless without supporting evidence?

2. Expression

Are the literary style and terminology employed appropriate to the subject and the audience?

Is the statement clear?

Is it general when it should be specific, or vice versa?

Is it flippant when it should be serious?

Are the thoughts expressed likely to arouse architects' hostility because they imply the assumption of unjustified knowledge or authority?

Does it indicate a knowledge of the architect's fiduciary relation to the client?

3. Appearance

Is the periodical advertising or piece of printed matter attractive enough, measured by architects' standards, to capture their attention and obtain a reading?

Does a pictorial illustration offend good taste?

Has the printed matter color when it should not have?

Is it elaborate and garish when it should be simple and businesslike?

Does it convey the idea of cheapness when it should suggest quiet elegance?

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6. Our glass is uniformly flat; it contains no reverse curves.
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8. Our glass is perfectly annealed and therefore does not break as easily as poorly annealed glass.
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13. Our glass does not break in shipment, on account of the uniformity of flatness, well made boxes, great care in packing, and skillful loading.
14. Our entire process is conducted on scientific principles.

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The Relation of Radium to Architecture

Continued from Page 20)

regards reliability of the other materials used in the same product.

Probably the next most important questions are the cost, the manner of specification, and the source of supply of this material. These questions will be answered throughout the article.

The following are amongst the most important uses of radium luminous material in so far as they relate to architectural specifications:

Luminous wall switches, including push buttons, tumbler and rotary switches, whether surface or flush.

Pull chain sockets and switches operated by a pull chain or cord.

Ceiling or wall switches operated by either pull cord or chain, or in the form of a pendant switch.

Fixture switches of the type frequently known as canopy switches.

Bell centers both of the flush and surface type.

Locks and other hardware items. (Luminous key holes are useful as well as humorous).

Luminous street door and room numbers. (The Pullman Company is, for example, using luminous berth curtain numbers.)

The methods of applying luminous material to these different devices vary considerably as manufacturing and design conditions necessitate.

Switches are usually treated by having a small luminous insert pressed or moulded into the handle by the manufacturer.

Sockets and pull cord or chain devices are taken care of by a luminous pendant spun in place by the manufacturer. The general idea of this pendant is quite familiar to the average man, as millions of them have been and are being sold over the counters of electrical and other retail stores with a slotted cap for attaching to sockets already in use.

House numbers are a complete item, and are made up by several manufacturers in various ways to afford protection to the luminous material from mechanical or chemical injury.

Bell centers in the surface type of bell buttons are made of transparent glass and filled with the luminous material, and this center substituted for the usual composition, porcelain or wood center. In the flush type of bell button, the manufacturer builds the luminous part into the button at the factory. The manufacturer of the surface

type can supply the button with the luminous center, or it can be purchased separately.

In connection with certain kinds of ceiling switches or with certain uses of ceiling switches where the cord hangs down in such a way as to strike against walls or other objects, special pendants have been made of somewhat heavier construction. A notable installation of these is in the Filing Department of the John Hancock Building in Boston, which has been completely equipped with one of these to each filing aisle, and while the pendant strikes frequently against the steel filing cases it is so substantially made as to remain uninjured.

The use of the luminous pendant in this particular case is made with the object of saving electric current. It was found that the clerks usually after taking papers from a file draw left the light, which was a 100 watt bulb, burning, and the excuse was invariably made that inasmuch as they were going right back to replace the papers (which was not of necessity always the case), it was simpler to leave the light burning than to grope around for the switch cord. The use of the luminous pendant overcame the difficulty of locating the switch and made the enforcement of the rule that lights should be turned off promptly, practical.

This particular pendant, being made of a heavy glass and with a hermetically sealed cap, appealed to the manufacturers of the severally manually operated hospital signal systems, and it has been adopted by them for the pull cord on the "calling" switch, both for the convenience of the patient in finding the cord and because of difficulty experienced with the usual composition or wood pendants which failed to stand sterilizing in boiling water. This failure necessitated constant replacement, the expense of which very quickly exceeded the cost of the luminous pendant.

Luminous switches, etc., have many advantages. For example, on entering a house or room, the stranger can see exactly where the switch is located. The usual occupant of the house or room is of course familiar with this location, but no matter how familiar the person may be along these lines there is always that slight loss of time and feeling of helplessness that accompanies the groping around in the dark for something, saying to one's self—"I know just exactly where this is, I wonder where it has gone to. It ought to be right here." Some

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people very emphatically state that this is not a statement of fact so far as they personnally are concerned, for **they** are able to place their finger directly on the switch button no matter how dark it is, but fingerprint evidence usually shows them to be wrong.

What is more unsightly than a switch plate or wall covered with finger prints? Even if the wall is kept constantly washed, the plate will show these prints and the constant washing of a wall will require frequent repainting or repapering, which means expense. Finger prints may be caused by dirty hands, and we all have them some time, and children have them nearly all the time. Dust on the wall and moist hands, or most hands alone, will produce finger prints.

A prominent manufacturer of paints in a recent campaign featuring a washing wall paint, spent for one particular advertisement in one issue of a large magazine $8500 to give his message to the public, and this was only one insertion in one particular magazine. Probably in all, that particular ad was shown to the public and the architect at a cost of $30,000 or $40,000, and in order to demonstrate the necessity for the use of a washable paint this manufacturer used a drawing in which the principal "horrible example" was a switch plate and its surrounding finger prints.

We have all had the experience of stumbling against various objects in the dark while looking for a switch, and possibly have experienced either or both personal and property damage as a result. This unpleasant experience is especially liable to occur in cellars, attics, garages, and places of that sort where one is less familiar with the location of other objects, thus making it particularly dangerous to grope around in such places in the dark.

A prominent architect in Rochester, N. Y., related a personal experience recently which demonstrates very well the above point. Coming home one night he miscalculated the location of the switch by possibly a foot and by mischance collided with a light card table in its usual place right near the switch in the room. Ordinarily there might have been no damage caused, but unfortunately his wife had been cleaning out the china closet and had placed on this light table the entire contents. The consequence was that the table collapsed, with results as might be expected. As he explained it, he did not mind so much the intrinsic loss of $600 covering the broken articles, or even the sentimental value represented by the fact that many of the articles were wedding and anniversary gifts, but the thing he minded most was the lecture he received for his carelessness and the very strong probability that the initial lecture would not be the last on the subject.

When luminous switches are used, one never has occasion to strike matches to find them, and fire prevention engineers and insurance experts have stated to the writer that the lighting of matches to find switches has frequently caused fires. This is of course more particularly true where inflammables are kept, but in any case one of the worst features of such fires is the fact that usually they are of a smouldering nature and do not break out until some time later when they have gained sufficient headway to make them very stubborn to put out.

This point is well illustrated by the experience of an architect in St. Louis who stated that it had cost his client $100,000 through not having luminous switches. The building in question was a very fine garage, but a careless chauffeur and a little oil soaked waste and a match carelessly thrown down after the switch was located caused a total loss.

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Luminous material is of great help in orienting one's self as regards the location of all other articles in the room. The single spot of light hanging from a pull chain socket, or visible on the switch button, will enable one to cross the room to reach the socket safely or to cross the room without turning on the light.

A further advantage in the use of radium luminous material is one that will appeal to the architect and the contractor alike; that is, the greater freedom permitted in the location of switches. The usual practice of placing a switch alongside the door frame is splendid if one has to feel for the switch, but often embarrassing for the contractor who has to install it. Many times a location could be found, which while eliminating the expense and difficulty found in the usual practice, will at the same time make the finding the switch through the use of luminous insert much simpler.

An example of this is seen where in an apartment hallway the door is located in the side of a hall with a wall directly opposite, and by placing the switch in the wall, even a few feet to one side of the door, one can walk directly to the switch and place the finger directly on the button, instead of turning around to feel for the switch, which if there were bundles or packages to be considered might be very inconvenient. At the same time the switch would not only be located in such a way as to avoid conflict with the door frame and other conditions, but there would be a considerable saving in B X, wire, etc., and less beams and uprights to cross between the switch and the outlet. It is not unusual for the saving on the installation of a single switch to be sufficient to pay for the luminous material for the entire job.

We are all familiar, if we have been around hotels very much, with the practice of having a sign on the door "Please turn off the lights," and we all know that if the switch is not convenient we are very prone to figure that we are paying for it anyway and to leave the lights burning. While the use of luminous switches will not guarantee the compliance with this rule, there is undoubtedly no deliberate waste of electric current on the part of the average citizen, and by making it easy to locate the switches we remove the principal reason why this request is so frequently ignored.

Hotel lights in apartments and hotels are usually turned off or very low after a certain hour at night, and while some of the more modern hotels have ventilating transoms which do not permit light to enter, the average hotel room is frequently too light for sleeping, due to light from the hall, or even if the lights are turned low it is unpleasant to have them shining through the transom, or when the dimness is produced by turning off some of the lights it is very annoying to have a room opposite the light which is left burning. The general result of this dimming of light in hallways is that it is just light enough to cast shadows and makes traversing the hall more difficult than if there was no lights. Certainly it makes it very difficult to read the room numbers and a hallway with luminous room numbers on both sides is usually a better proposition completely dark than the average dimly lit hall, and the saving in current is complete instead of only partial, and the room numbers can be much more easily read.

Builders of apartment houses and houses put up for resale have frequently stated that in their estimation the use of Radium Luminous Material added very greatly to the rental or sales value of the properties by reason of the spectacular exemplification of the "every modern improvement" idea; the result being that the prospective tenant or purchaser will go away very much impressed with the extent to which conveniences have been provided "even switches which can be seen in the dark." In very cheap work, luminous pull chain sockets decidedly offset the disadvantage caused by the leaving out of switches.

In hotels luminous material tends to offset the disadvantage caused by the fact that one cannot have the switch near the door where it can be groped for and at the same time near the bed where it will be convenient for turning out the light when retiring, or turning on the light during the night. With the luminous tip the switch can be so located as to be seen from the door and at the same time be seen from the bed and be near the bed. Such a location is usually a more economical one for installing the switch.

(Concluded in September Issue)

Los Angeles Building Activities

By IRA C. TICHENOR,
Publicity Department,
Los Angeles Chamber of Commerce

Contrary to general expectations, based upon the unbroken rule of past years, construction operations in Los Angeles actually increased, rather than diminished, during July.

In this month, the first of the new fiscal year and the height of the summer season, a slowing down in building work is anticipated by builders and contractors, architects and others directly or indirectly interested in the building industry.

This year, however, July has joined the record-breaking monthly column with a total estimated valuation of $15,083,273, or a gain of $7,019,255 over July of last year.

This record is considered especially remarkable in view of the fact that the permits for the month included only one height-limit Class A structure, the estimated cost of which was $2,000,000.

Construction of dwellings continues to increase. Of the single variety the number of permits isued in July totalled 1,456, at a cost of $3,038,870, and for double dwellings, 282 permits at a total estimated cost of $1,409,960. Eighty flats and forty-five apartment houses were among the housing additions.

That Los Angeles is sustaining its reputation as an auto center is indicated by the fact that the July permits included 1,229 garages and 59 service stations, with a total estimated cost of $512,000.

Los Angeles also is taking care of its increasing number of school children. The list of July permits included thirty-five school buildings having a total estimated cost of $933,500.

The records of the building department show that during the first seven months of 1923 there were issued 34,400 permits with a total valuation of $108,972,458, as compared with 25,650 permits and $67,523,268 in cost for the first seven months of 1922, or an increase of 8,750 permits and a gain of $41,449,190 in valuation.

At this rate of increase the total for the year would be approximately $185,000,000, as compared with the new record made in 1922 of something over $121,000,000.

In view of the certainty of the beginning of construction of a dozen or more height-limit Class A buildings before the close of the year there is a strong probability that the total building operations for 1923 will approximate, if not exceed, $200,000,000.

According to a statement made by the building inspector there are now on file in his department a number of plans for buildings that will cost several millions of dollars in the aggregate, and the prediction is made by the inspector that the August valuation of permits will be in excess of the July total of something above $15,000,000.

While extensive construction operations have been planned for various sections of the retail business district, South Spring street, it would seem, has in prospect the greatest amount of big building work of any single district.

Architectural and engineering plans now are under way for a twelve-story Class A building on the southwest corner of Seventh and Spring. Alin, McCabe & Co. and Charles Shane have taken a 98-year lease on the frontage from Mildred Browning Green at a total rental of $3,528,000.

Joe Toplitzky and associates will build a height-limit bank and office building on the northeast corner of Seventh and Spring at a cost of $1,750,000.

The National City Bank of Los Angeles will build a twelve-story home on the

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southwest corner of Eighth and Spring, to cost $1,000,000, while another twelve-story building will be erected on the old armory site at the northwest corner of the same street intersection.

Construction already has begun on the thirteen-story Great Republic Life building on the northeast corner of Eighth and Spring, while operations have begun on a twelve-story building for William May Garland on the northeast corner of Ninth and Spring.

South Broadway also will have its share of big construction work. Among the assured projects is a thirteen-story Class A building at 816-18 South Broadway at a cost of about $1,500,000 for the Wurlitzer Music Company of Cincinnati. Construction operations will begin September 1.

On the west side of Broadway, between Ninth and Tenth, a nine-story building will be erected for the Western Costume Company at a cost of $750,000. It will have a frontage of 100 feet.

Announcement has been made by E. M. Nutting, owner of the frontage on the northeast corner of Eleventh and Broadway, that he will soon begin the erection of a thirteen-story building.

At Twelfth and Broadway the basement has been excavated for the new home of the Los Angeles Chamber of Commerce. The building will be eight stories in height and will be a full block in length and half a block in width.

Excavating has just been started for the hall of justice and county jail to be erected at the northeast corner of Temple Street and North Broadway at a cost of $3,500,000. This building will form a portion of the proposed civic center, favorably voted upon at the municipal election in May.

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Miniature Models of Cardboard

(Continued from Page 19)

construction work is begun, and the architect is assured of the client's approval of the finished work.

By the use of composite photography the relation of the building to the site it is to occupy can be determined.

Cardboard models have many advantages over the clay and plasticene models, cast into plaster paris. They are light in weight and easy to handle, but durable. Owing to difficulties of casting, clean sharp detail cannot be secured with a plaster model. It is also difficult to apply color to the plaster model. Working in cardboard takes much less time, there are no delays caused by casting, drying, etc. The interior of the building can also be constructed, as well as the exterior.

For the promotion and development of tracts of land, a model is of undisputed value. The base is made of papier mache, after the manner of a relief map, trees and shrubs of appropriate materials. Proposed improvements are constructed to scale, and this method of presentation has been found most practical and very valuable in encouraging sales.

QUICK-SETTING LIME BLOCKS DEVELOPED BY BUREAU OF STANDARDS

A cast lime building tile for use in making partitions has been developed at the Bureau of Standards by the Fellow of the National Lime Association. The material of which it is made sets so that it can be removed from the mold at the end of ten minutes. After twenty minutes it can be handled, and after seven days it has a compressive strength of one hundred pounds per square inch. It can be sawed, and nails can be driven into it.

The material is composed of five parts by volume of ground quick lime, ten of hydrate or slaked lime, and one of wood fiber. It is found to cure best when outdoors exposed to the weather. The new tile is about twenty per cent heavier than gypsum tile of the same size, and experiments are being conducted to see if the core volume can be increased without too great a sacrifice of strength.

The quick setting lime of which the tile is made was developed several months ago by the Bureau of Standards, and can also be used for other purposes. Difficulty is found in shipping it, however.

FINDS ALUMINUM PAINT MAKES RADIATORS LESS EFFICIENT

The aluminum or bronze paint generally applied to radiators greatly reduces their effectiveness and makes it necessary to have a larger surface for the same heating effect, according to experiments performed by Dr. W. W. Coblentz of the Bureau of Standards. Dr. Coblentz finds that the heat radiated from an aluminum painted radiator surface is less than a third of that emitted by a radiator of the same size painted with a non-metallic paint, enameled, or simply allowed to rust.

On the other hand he finds that aluminum paint is a very effective means of reducing the amount of heat transmitted through a thin material. Applied to the under side of a tent or awning it reduces by three-fourths the amount of heat from the sun which gets through the cloth, while if used on the cover of an automobile or ice wagon it cuts in half the heat let through and makes the temperature inside the vehicle more nearly that found in natural shade, thereby making it much more comfortable.

UNITED STATES CIVIL SERVICE EXAMINATION

The United States Civil Service Commission announces the following open competitive examination:

ARCHITECTURAL DRAFTSMAN

The examination will be held throughout the country on September 5 and 6. It is to fill vacancies in the Departmental Service and in the field, at entrance salaries ranging from $1500 to $2000 a year, plus the increase of $20 a month allowed by Congress.

Applicants must have graduated in architecture from a technical school of recognized standing, or have had at least five years' experience in progressive architectural office drafting work. If the applicant is not a graduate, but has had special training in architecture in a technical school of recognized standing, such training, according to its value, will be considered equivalent, year for year, to not more than two years of these five.

Full information and application blanks may be obtained from the United States Civil Service Commission, Washington, D. C., or the secretary of the board of U. S. civil service examiners at the postoffice or custom house in any city.

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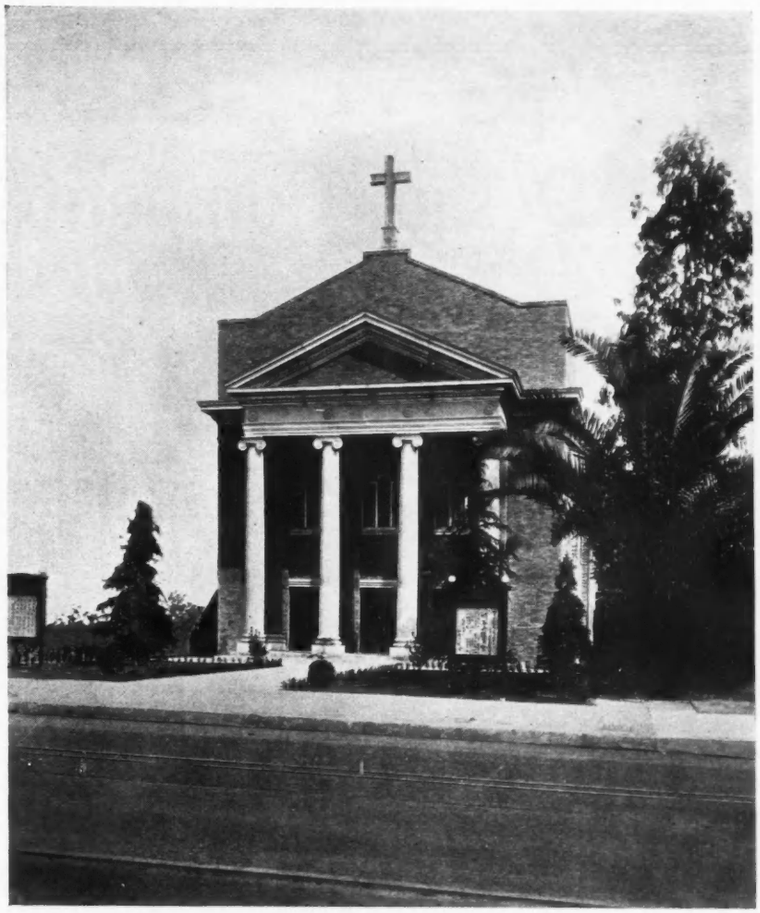

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Cover Design Competition

The Building Review announces a competition for the Best Design for a Cover for its monthly issue. The competition is open to everyone.

Competitors must register with the Building Review, 426 Chronicle Building, San Francisco, by written applications to be received before November 15, 1923. Drawings must be received at the same office before December 1, 1923.

The prizes will be as follows: First prize, $50; second prize, $25; third prize, $10. Prize designs and others which may receive honorable mention will be published in the January issue.

The design is to consist of a frame or border, of architectural character, containing the words "Pacific Coast Architect" near the top, in large letters. The remaining space within the frame will be left vacant for inserts which will be changed each month.

Drawings must be made on white paper in black ink, capable of reproduction as a zinc line cut. The frame is to measure over all 10 inches wide by 13 1/3 inches high, to be reduced to a cut 7½ x 10 inches.

Accompanying each drawing there must be two sealed envelopes, one containing name and address of the competitor, the other marked "Jury" to contain the names of three San Francisco architects. The three architects who receive the highest number of votes will be asked to serve as a jury.

Prize designs will become the property of the Building Review Co., and all others will be returned to the competitors.